lated tumors; the electric needle; and the actual cautery. The writer believes that the actual cautery applied at a low degree of heat, just below a dull red, is one of the best methods, as its action is quick, painless and efficient, and leaves no scar. Under its use the lesion promptly scabs, desiccates and disappears.

The prognosis seems to be good for ultimate recovery without sequelae.

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DISCUSSION

M. F. WEYMANN, M. D. (2007 Wilshire Boulevard, Los Angeles)—Doctor Kiefer has done us a service in calling to our attention a condition which may be met with by oculists, and still is so little known to most of them. Although the condition may be common to dermatologists, it is rare in an ophthalmological practice. In over five years I have had only one patient with this trouble. She was a young woman with two discrete nodules about the size of a pea on the upper left lid. These were umbilicated and about one centimeter apart. There were no other lesions on the body, but there was a history of one on the lower lid which had previously spontaneously disappeared. For microscopic study, I removed both lesions with an elliptical incision. The histological picture was typical of molluscum contagiosum as described by Doctor Kiefer. There was no recurrence.

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J. WILLIAM CRAWFORD, M. D. (384 Post Street, San Francisco)—Molluscum contagiosum is primarily a dermatological problem rather than an ophthalmological one. It is essentially a disease of the skin and affects the skin in the neighborhood of the eyeball only occasionally, but in such cases it in nowise differs from molluscum contagiosum elsewhere on the body. Its extreme rarity as reported by Doctor Kiefer and other ophthalmologists is only an apparent one, for molluscum contagiosum is a disease seen quite commonly by dermatologists, as the records of any skin clinic will show. The vast majority of the patients affected with the lesions on the skin about the eye go directly to the dermatologist or are referred to him by the physician first consulted. It is only occasionally that such a patient will consult an ophthalmologist. It is quite possible too that in some cases the diagnosis is overlooked by the attending physician and the lesion put down as a verruca, a mistake that can readily be made by the uninitiated.

It is therefore well that we have our attention called to the possibility of the condition and be reminded of its essential characteristics as Doctor Kiefer has done.

The essential characteristics of the disease are these:

1. Small isolated, waxy epithelial tumors, white or pink in color, having minute rounded orifices at their apices looking not unlike small pearl buttons.
2. The condition is mildly contagious.
3. Mucous membranes are but rarely affected, but when they are involved the lesions present the same characteristics.
4. The condition tends to spontaneous recovery.
5. The majority of the patients are children.
6. Constitutional symptoms are absent.

The most common error in diagnosis is to confound the condition with verruca, though the lesions are sufficiently characteristic to be readily recognized if the disease is kept in mind. The absence of pedunculation and the presence of umbilication serve to differentiate the conditions.

The simplest treatment, probably, is to curette the lesions and touch the base with phenol. This is the method followed in the dermatological department of the University of California.

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GEORGE H. KRESS, M. D. (245 Bradbury Building, Los Angeles)—Diseases which are only occasionally met with lead most physicians to take an increased interest therein. Thus pterygia, which almost all medical students in America early learn to recognize, are rather infrequently met with in European clinics and excite special comment.

Molluscum contagiosum is primarily an infection of the skin, more often of the face; and because the lesions are often on the eyelids, not infrequently come under the observation of the eye specialist. Doctor Kiefer has described the disease and the current views in regard thereto. It must be confessed that since it was first discovered about a century ago, that our actual knowledge of it has not been greatly increased. Its clinical signs were then recognized, but its causative agent has as yet not been isolated. Its symptoms are mild and few. As stated by Doctor Kiefer it runs a somewhat benign and sluggish course and responds to treatment quite readily. Haab mentions having inoculated himself, and that in his case it was about a half year before the disease developed. It has been more frequently observed in institutions for juveniles, and among persons having uncleanly habits or of undertone nourishment. The lesions are as given by Doctor Kiefer, and the pathologic changes are largely those associated with a degeneration of the epithelial cells.

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DOCTOR KIEFER (closing)—I wish to extend my thanks to Drs. George Kress, J. W. Crawford, and M. F. Weymann for their kindly and thorough discussion of the subject, which leaves me nothing further to add.

SICKNESS VERSUS ACCIDENTS IN INDUSTRY*

By C. O. SAPPINGTON, M. D.
Oakland

DISCUSSION *by Robert T. Legge, M. D., Berkeley; Philip Stephens, M. D., Los Angeles.*

A CASUAL survey of the history of the state compensation laws of this country leads one to the inevitable conclusion that workmen are fairly well protected in case of injuries resulting from industrial accidents. Such a provision arose out of the fact that most authorities came to the decision that the responsibility for the economic adjustment, consequent upon injury, incapacity and rehabilitation should rest with the employer and be charged to the cost of production. That such a theory has been proven sound in practice is now a matter of history.

Following upon this principle came the problem of the assumption of risk from the standpoint of insurance carriers. Various industrial organizations were quick to realize the opportunities thus presented, with the result that there is now considerable competition to care for injured employees.

CAUSES OF ABSENTEEISM

Today approximately 90 per cent of industrial organizations are doing for their employees only

* Read before the California Medical Association, Industrial Medicine and Surgery Section, at the Fifty-Sixth Annual Meeting, April 25-28, 1927.

what is required by law—caring for injuries. The purely medical phases of industrial work have up to the present time not only been side-stepped, but in most instances have been willfully neglected. The following tables presenting statistics in various industries may be of interest in this connection:

Table 1 from Hackett[1] shows that sickness was responsible for 60 per cent of absenteeism, while accidents were the cause of only 0.15 per cent.

TABLE 1—*Causes of Absence in a Munitions Plant, September to November, 1918 (Total, 18,491 Cases)*

Cause	Percentage of Absenteeism
Accidents	0.15
Sickness	60.75
Death	5.30
Personal	28.11
Legal	.90
Miscellaneous	4.78

Table 2 shows the experience in a large manufacturing concern. Sickness and personal reasons were the cause of 85 per cent of absences as compared with 3 per cent resulting from accidents.

TABLE 2—*Causes of Absence in a Middlewestern Manufacturing Group of 6700*

Cause	Percentage of Absenteeism
Industrial Accidents	3.2
Non-industrial accidents	1.1
Sickness (disability more than two consecutive days)	31.5
Personal reasons and sickness of less than three days	64.2

A coal and coke company record is shown in Table 3. Forty-five per cent of absenteeism was occasioned by sickness, whereas 22 per cent was caused by accidents.[1]

TABLE 3—*Causes of Absenteeism in a Coal and Coke Company*

Cause	Percentage of Absenteeism
Accidents	22.0
Sickness of absentee	45.1
Sickness in family	3.7
Business	20.8
Miscellaneous	8.7

Somewhat recently a survey of records of the Edison Electric Illuminating Company of Boston (Sappington[2]) for the five years, 1918-22, showed the results found in Table 4. Observe that there were approximately twenty times the number of cases of sickness as accidents, that the working time lost was sevenfold in cases of sickness, and that disability on account of illness was the cause of 92 per cent of absenteeism.

TABLE 4—*Absenteeism Experience of a Boston Public Utility During 1918-22*

Cases	No. Cases	Work Days Lost	Percentage of Absenteeism
Sickness	14,280	83,280	92.1
Industrial accidents	774	13,221	4.9
Non-industrial accidents	448	3,377	3.0
All causes	15,502	99,878	100.0

COSTS OF ILLNESS IN SOME INDUSTRIAL ORGANIZATIONS

Costs are always interesting to the industrial executive. In the Edison series sickness cost $139,872.40 compared with $29,412 paid out for accidents. These amounts were based entirely upon the money paid as benefits by the employees' association.

Table 5 shows the number of cases and the chief types of illness segregated according to cost.

TABLE 5—*Benefits Paid for the Six Greatest Causes of Illness (Edison Experience, 1928-22)*

Disease	No. Cases	Benefits Paid
Common colds	5,328	$ 4,898.20
Minor digestive complaints	1,246	508.20
Pharyngitis and tonsillitis	1,007	2,455.20
Functional nervous diseases	731	19,923.20
Dysmenorrhea	683	951.10
Rheumatism, arthritis, gout	651	8,098.50
All diseases	14,280	139,872.40

The chief kinds of illness considered as factors of lost time are shown in Table 6. Note the great loss of time from common colds and the severity of joint diseases and functional nervous disturbances as shown by the average working days lost per case.

INDUSTRIAL MORBIDITY: NATURE, RELATION TO TIME LOST, MORBIDITY RATES

TABLE 6—*Total Time Lost and Average Work Days Lost Per Case in Chief Illnesses*

Disease	No. Cases	Total Days Lost	Average Work Days Lost Per Case
Common colds	5,328	16,983	3.2
Disturbances of digestion	1,246	2,647	2.1
Pharyngitis and tonsillitis	1,007	4,698	4.9
Functional nervous diseases	731	6,882	9.4
Dysmenorrhea	683	1,486	2.1
Joint diseases	651	4,781	7.4
All diseases	14,280	83,280	5.8

Table 7 shows that higher rates of illness in the chief types of disability causing absenteeism in the Edison experience were found in the younger age groups.

TABLE 7—*Rates Per Hundred Employees, by Age Groups, for Illnesses Causing Highest Absenteeism*

Disease	Rates per 100 Employees in Age Groups as Shown 10-19	20-29	30-39	40-49	50-59	Over 60	All Ages
Common colds	101	57	50	51	31	18	47
Disturbances of digestion	23	15	11	10	6	3	11
Pharyngitis and tonsillitis	21	13	9	5	2	1	9
Functional nervous diseases	13	9	6	5	4	2	6
Dysmenorrhea (per 100 women)	30	42	20	12	4	0	32
Rheumatism, arthritis, gout	2	4	6	10	10	8	6
All other diseases	110	47	45	45	35	30	41
All diseases	285	158	132	128	88	61	128

Table 8 shows that the highest disease rates occurred among the females.

TABLE 8—*Number of Cases, Total Rates and Sex Rates for the Chief Disabling Illnesses (1918-22)*

Diseases	No. Cases	Rate Per 100 Persons	Per 100 Men	Per 100 Women
Common colds	5,328	47	41	76
Diseases of digestion	1,246	11	17	9
Pharyngitis and tonsillitis	1,007	9	6	19
Joint diseases	651	6	6	4
Dysmenorrhea	683	....	....	32
Functional nervous diseases	731	6	3	19
All other diseases	4,645	41	51	222
All diseases	14,280	128	157	683

Time and space forbid the quoting of more data. In addition to the industrial examples which have been mentioned it should be stated that of many commercial insurance companies which write both health and accident protection, the majority report that 50 to 80 per cent of their claims are paid for sickness.

RELATIVE RÔLES OF ACCIDENTS AND DISEASE IN INDUSTRY

Insurance carriers and employers are interested in the reduction of accidents and occupational hazards.

Can the most efficient industrial injury service exert an ameliorative influence on the incidence of accidents due or related to bad lighting, improper ventilation, toxicological factors or mental and physical defects? The answer is that one cannot any more logically separate preventive and curative measures in industry than he can separate mental and physical processes in the same human body.

Do not mistake the interpretation here intended. One would not vote for a relaxation of vigilance on the part of those attempting to reduce the number of industrial accidents. Typhoid prophylaxis is only half the story of control; the polluted stream must also be purified. The source of the difficulty is most important. Today the greatest single economic drain in industry is sickness. In the words of a leading health authority:[3] "For every industrial disability needing surgical attention there are probably ten or more cases needing medical investigation, and of this larger number the treatment is preventive. Hence medical work in industry should be organized around preventive medical undertakings rather than around surgical and curative measures."

FUTURE POSSIBILITIES

Two events have taken place in the field of industrial medicine during the past year which may be cited to show the way industrial medical service is tending. The first was the Fifteenth Annual Safety Congress at Detroit.[4] The subject of health problems was the dominating issue of this conference, it being the feeling of the group that "health service should be based fundamentally on prevention which, from the industrial standpoint, is far more important than curative medical or surgical procedures." The second was the annual meeting of the Association of New York Central Lines Surgeons at which was presented a symposium on periodic health examinations.[5]

Industry is now assuming and will continue to more widely assume the responsibility for sickness in its workers. As one industrial hygienist[6] has put it, the industrial physician "ought to be projected into the great scheme of production and not forever played as a life saver." There is no logical reason why the financially more important problems incident to sickness should not be made a part of the cost of production as has been the case with accidents; but most important of all is the service that provides for careful examinations before employment, correction of physical defects, early treatment of minor ailments and other procedures calculated to preserve the health and efficiency of the worker, upon whom the quality and quantity of production depend.

Hayhurst[7] has summarized the values to be aimed at as follows:

1. Control of environment, personal hygiene, and physical examinations.

2. The fundamentals of industrial health which require that cost of production include the cost of health maintenance.

3. The application of health standards directly to the working classes.

4. Organization, official and non-official, for effective administration with qualified personnel.

What form will these activities take? There are several possibilities:

1. The extension of private insurance services to include this work in industrial medicine; this is now being practiced on a large scale in some eastern cities.

2. The inclusion of a division or a bureau of industrial hygiene as a part of the State Health Department. This procedure has met with considerable success in some states.

3. Probably best of all is the formation of competent medical groups which will have contact with industry on the one hand and research relations with hospitals and medical schools on the other. Such a group could foster a program of education among industries, demonstrating the value of health service and also cooperate in teaching and research in medical schools and hospitals.

CONCLUSIONS

1. Sickness is a far greater cause of industrial inefficiency, spoilage, absenteeism, labor turnover, and financial loss in general than injuries. It is because of this economic factor that industry will more and more assume the financial responsibility for the health of its employees.

2. Industrial medicine is in reality a phase of public health. As a leading health authority has recently stated (Winslow[8]), "Industrial medicine has vast possibilities of usefulness, and in this country has already accomplished more than any of the other tendencies which have been noted in bringing medical service to the individual at a

stage when the most effective measure of prevention can be assured."

3. The field of industrial medicine contains abundant material for scientific research. The opportunities will be delayed or entirely lost, however, unless more financial support and vital encouragement is forthcoming from official and non-official health agencies. Large national and local organizations must lend active aid and point the way during the formative period. Better and more definite relations must be established between active industrial physicians, hospitals, and medical schools, if organized medicine would protect its rights as a leader in the field of industrial health.

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DISCUSSION

ROBERT T. LEGGE, M. D. (University of California, Berkeley)—The researches of Sappington and Brundage in their studies of the absences from work due to sickness and accidents among employees of the Edison Electric Illuminating Company of Boston have revealed fundamental information needed for the acceleration of progress in the field of industrial medicine. They have definitely shown that sickness as a disability factor caused twelve times as many absences as industrial accidents.

This fact fully established, the problem remains whether industry should serve its employees with full medical care. The employer realizes he is legally responsible in all injuries, ailments and occupational diseases arising from employment. He likewise is fully cognizant that absenteeism due to illness is a financial loss to him as well as to his employee.

The National Industrial Conference Board recently, after considerable study and by careful surveys, published the following, which I shall quote:

"Private medical practitioners today will hardly question the right, even in most cases, of the obligation of an employer to provide prompt medical attention to those of his employees who have suffered injury or become ill in the course of their employment. They will surely approve every well directed effort of the employer to maintain hygienic work places and to promote the health of his employees while at work.

"Differences of opinion may arise as between private practitioners and the plant physician when the latter undertakes the treatment of all illnesses, no matter how unrelated to their employment. The tact and common sense of each plant physician must find the proper course to pursue, which must be ethical and at the same time in the best interest of the patient, with due regard to the financial interest of the employer.

"The higher the character of medical service rendered by the plant physician the more will his influence tend toward the development and maintenance of a high type of medical service in the community in which the plant is located. There is some evidence that the supposed encroachment of industrial medical activities upon the private practice of outside physicians is more apparent than real. Where the activities of the industrial physician are confined to the treatment of ordinary injuries and ailments received during the course of employment, as well as the diagnosis of medical cases, it has been found that the work of the private physician has been augmented rather than curtailed. This is particularly true where physical examinations are required of applicants, and the defects discovered are referred to the outside physician for correction and treatment."

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PHILIP STEPHENS, M. D. (1136 West Sixth Street, Los Angeles)—"Whither are we drifting?" is the thought which strikes me with considerable force as I read Doctor Sappington's reasonable and convincing statistics and argument for a still further advancement in the program of responsibility with which not only all corporations, but all employers of labor have been, by the enforcement of the state compensation laws, compelled to assume. I believe it is an established fact at the present time, both with the working man and his employer, that the law is a good one. All are benefited—even our medical profession.

I believe that employers of labor have and should exercise their right to select by adequate physical examination healthy men and women, for the very obvious reasons: to protect themselves in their future relations, and to promote the efficiency of an organization which employees, healthy in mind and body, bring.

I believe that these employees should be examined from time to time for the above-mentioned reason, of having a healthy and efficient organization, and if the corporation has gone to the trouble and expense to so select its employees, an adequate medical organization should be maintained to keep it so, and, in most public service corporations, for the protection of the public.

Carrying the matter of medical service to the point where both the employer and employed are equally and plainly benefited by the plan is as far as we should go. Of this I am firmly convinced from many years' experience in work of this character.

We should not advise the carrying of our medical supervision to the point where the employer is assuming or tending to assume the entire responsibility for both the health of and accidents to the employed. A limit can and should be sharply drawn, not only for the good of all parties concerned, but for the future of our profession.

The character and personnel of the men doing industrial work undoubtedly is yearly improving, and with industrial advance there is a field not only recognized, but being followed by men of character and broad outlook.

These men should work hand in hand with the rest of our profession for the good of all, the maintenance of our ideals, and combat the fast-growing tendency in medicine in general, and in industrial medicine in particular, to commercialize it.

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DOCTOR SAPPINGTON (closing)—I wish to thank Doctors Legge and Stephens for their able discussion of this paper. Both have emphasized the necessity for the increase of the preventive phase of the work in the actual practice of industrial medicine.

Another important point brought out by the discussers is the need for the raising of the standards

of industrial medicine and the prevention of commercialization of the practice of industrial medicine and surgery.

The standard of practice for any group is dependent upon the personal excellence of the individuals composing the group; going one step farther back, these ideals and principles are largely developed and started in educational institutions; in the final analysis the responsibility for the type of industrial work largely rests with those who are also responsible for the grade of work done in any medical specialty.

Only a thorough cooperation between industries, medical schools, physicians, and students, will secure the desired results.

THE LURE OF MEDICAL HISTORY

GALEN*

By CLIFFORD W. MACK, M. D.
Livermore

THE name of Galen has come down to us in medical history as one of the early Greeks who exerted a great influence upon medical thought and practice. He takes an equal place, if not a superior one, with Hippocrates as the father of medicine. Hippocrates is usually given that honor, but it seems to be proven that many of the treatises collected under his name cannot really be attributed to his authorship. Galen refers to him in many of his writings and wrote several commentaries upon them. It is asserted that the Hippocratic oath was not promulgated by Hippocrates the second, the author, but was only ascribed to him by the ancients. Mercurialis ascribed it to other persons, using as one proof that the oath prohibits the induction of abortion, and from a treatise by Hippocrates cites a case of a patient who was aborted under his own direction and prescription. It has never been determined whether the oath was written before or after Hippocrates' time, but probably the latter is correct.

In contrast to Hippocrates, the writings of Galen, of which he is definitely proven as the author, are very numerous. He was not only famous in his own time, but his teachings dominated medical thought for centuries. There must be some merit in his works, otherwise it would be difficult to understand that they were standard for over twelve centuries and any departure from them was considered heretical. Five hundred years after his time he was held in such veneration as to be regarded by many as a god and religious worship accorded him. He was copied by the Arabian physicians and, in spite of virulent opponents, the greater part of the medical world held his beliefs. Galen was compelled to oppose a long tradition of medical thought in vogue during his time. A succession of learned men had preserved in one family—that of Asclepiades—all that was then known of medicine. These ideas were based upon superstition, healing by incantations, etc., and were passed on largely by word of mouth. They were gathered together first as a written record by Hippocrates.

In the early days medicine was subject to much speculation and produced many sects which attacked each other virulently. At the time of Galen there were six prominent sects. He refused to be a follower of any but remained independent in his thought choosing from all, those things which seemed to him proven by judgment and experience. Galen did not spare Hippocrates in his criticism of the early medical writers although he gives him credit for laying the foundation of true medical knowledge.

Galen was born in Pergamos in Asia Minor—a city in which there was a temple dedicated to Esculapius, about 130 A. D. in the reign of Adrian. He lived to be 100 years old. Galen's father was a wealthy, educated man, acquainted with literature, philosophy, astronomy, geometry, and architecture. It can therefore be assumed that he would be zealous in the education of his son, imparting to him all the advantages to be obtained in the educational centers known to the early Greeks. Galen studied in the School of Philosophers, of which there were many in those days, such as the Stoics, Academicians, Peripatetics and Epicureans, and then began the study of medicine at the early age of seventeen. In his youth he traveled much to acquaint himself with medicine in different countries, visiting Alexandria (in Egypt), Cilicia, Palestine, Crete, Cypress, and the Isle of Lemnos. At the age of twenty-eight he returned to the place of his birth to begin the practice of medicine. At the age of thirty-two he went to Rome, but was driven out in a few years by the jealousy of other physicians. During his stay Galen apparently made his name well known in Rome because he had become an intimate of persons of rank and acquired a large reputation. It is supposed that he was about thirty-seven years of age when he left Rome, returning to Pergamos. He was recalled by Marcus Aurelius and continued throughout the rest of his life in or near the Roman capitol.

The writings of Galen have come down to us only in the Greek and Latin. It is probably known to but few that there is no complete English translation. The writings consist of nearly seven hundred books or treatises, of which several are lost. The original is in Greek; different portions have been translated into Latin and these have passed through numerous editions. The principal and best of the translations are those published at Venice by Juntas and at Basel by Forbinius. The writings of Galen are epitomized from the original translations by an American, John Redman Coxe, M. D., member of the Royal Medical Society, and his work was published in Philadelphia in 1846. He possessed Greek editions and also editions in the Latin, the third of 1556, the sixth of 1586, the ninth of 1609—all Venice copies of the Basel edition of 1549.

This book by Coxe is worth perusal by the physician who wishes to know some of the work of which we today enjoy the heritage. Coxe states that the Latin translators have divided the writings of Galen into seven classes. These classes are preceded by introductory books giving a general idea of the work to follow. The latter were expected to be used first by students and hence

* Read before the Galen Club of Oakland, December 23, 1927.